

Atty's 22770

Pat. App. 10/791,326

REMARKS

This amendment is submitted in an earnest effort to bring this application to issue without delay.

Applicants have amended claim 25, canceled claims 27 and claims 29 through 34 and added claims 35 through 42. Antecedent basis for the amendments to claim 25 may be found in the specification on page 5, lines 6 to 15. Antecedent basis for new claims 35 through 42 may be found in the specification on page 4, line 13 through page 10, line 2. Thus claims 25, 28 and 35 through 42 are now in the application and are presented for examination.

The Examiner has suggested on page 2, first paragraph, of the office action that Applicants might amend claim 25 to mention near the beginning of the claim, that the hybrid silicon composite powder as an ingredient for a cosmetic applied to skin, to impart a smooth feeling when the cosmetic is applied to the skin, Applicants have made such an amendment to claim 25 and have drafted new method claim 37 to include this language as well. Applicants believe that such language serves to further distinguish the presently claimed invention over all of the Examiner's newly cited prior art references.

The Examiner has dropped her original rejection of the claims, and instead has carried out a new search of the prior art, and given a new rejection of all claims as obvious in view of a combination of four prior art references: European Patent Application 0 315 836 together with US Patent 5,173,290 to HALLORAN

Atty's 22770

Pat. App. 10/791,326

et al, and in further combination with US Patent 6,706,405 to SANDERS et al and US Patent 7,256,232 to LAMAZE et al.

At the outset Applicants note that on page 5, last paragraph of the office action, the Examiner has indicated that claims 27 and 29 through 34 are product-by-process claims that add no structural limitation to the claimed product, and so the Examiner considers these claims obvious in view of the cited prior art for the same reason that she considers claim 25, as last presented, as obvious in view of the cited prior art. Accordingly Applicants have canceled claims 27 and claims 29 through 34 and replaced those claims with new method claims 37 through 42. Applicants ask that the Examiner examine the method claims at the same time as she examines the composition claims since Applicants have drafted the method claims to be of corresponding scope to the product-by-process claims that Applicants originally submitted and have now canceled.

Applicants believe that all of the claims now presented are patentably distinguishable over the cited prior art. European Patent Application 0 315 836 to FINBERG discloses interpenetrating polymer networks that include polydimethylsiloxane (page 4, lines 19 and 20) and a second polymer, defined in the third to the last line on page 2 of the reference as "a second organic polymer." The Examiner argues that the definition of the second polymer is open-ended, not limited to any particular polymer, and is broad

Atty's 22770

Pat. App. 10/791,326

enough to include Applicants' PMSQ. See the middle paragraph of page 4 of the reference. Applicants do not agree with the Examiner because the reference defines the second polymer as an organic polymer. While it may be true that PMSQ is a polymer that contains methyl groups and that methyl groups are organic, Applicants do not agree that PMSQ is an organic polymer because the backbone of that polymer is a linkage of repeating silicon and oxygen atoms. The backbone of such a polymer is clearly inorganic and not organic. Thus the present interpenetrating polymer in claim 25 is clearly not the kind of organic polymer called for in this reference, which from the examples includes polystyrene, t-butyl styrene, polymethacrylates, etc. Furthermore these products formed are believed to be silicone elastomers, coatings, and Applicants see no mention or suggestion that the coatings would be useful as a cosmetic ingredient for any purpose, let alone for the specific purpose of treating the skin.

FINBERG teaches an interpenetrating polymer network (IPN) comprising an organosilicon polymer and an organic vinyl polymer. The FINBERG material is a silicone rubber with improved breaking strength, elongation break, and hardness as compared with those parameters of a blend of silicone rubber and vinyl polymers. The resulting material is of the shape of a container because the bulk polymerization and cross linking reaction take place in a container. This material is more like other commercial liquid rubber that can be vulcanized in a mold and which cannot be used to

Atty's 22770

Pat. App. 10/791,326

produce micro fine spherical powders as in Applicants' presently claimed invention.

In claims 5 and 6 of FINBERG, the second polymer is limited to an addition polymer and selected from the group consisting of a vinyl and vinylidene polymers. On the contrary, Applicants' PMSQ is neither an addition polymer nor a vinyl or vinylidene polymer as called for in FINBERG. In polymer chemistry, a vinyl polymer is generally polymerized by radical addition polymerization. Applicants' second polymer (PMSQ) is formed from a "hydration and condensation reaction" of non-vinyl silane, namely, a trialkoxysilane.

FINBERG certainly does not teach or even suggest the art of preparing micro fine spherical powder of an IPN structure comprising organosilicone and a non-vinyl silicone resin. Nor does FINBERG disclose or suggest preparing Applicants' novel and unobvious compositions for cosmetic, skin care applications. Accordingly FINBERG provides no basis to reject any claim now presented as obvious under 35 USC 103.

US Patent 5,173,290 to HALLORAN et al is directed to a hair treating method, which is perhaps related to the treatment of the skin, since hair is modified skin. However, HALLORAN et al discloses compositions that contain an interpenetrating polymer network using PMSQ and a second polymer, but the second polymer is not PMS. Instead the second polymer is once again an organic

Atty's 22770

Pat. App. 10/791,326

polymer, especially a vinyl-substituted polymer as defined in col. 9, lines 16 to 32 of the reference. Even though Applicants' PMS is a vinyl-substituted polymer as well, Applicants do not see vinyl-substituted polymers with an -SiO- as the vinyl-containing compound anywhere in the reference, which discloses only polymers with a carbon-carbon backbone. In addition the reference discloses that the interpenetrating polymer network composition disclosed in the reference is a film-forming composition as a hair fixative. See col. 3, line 28. Applicants' claimed invention is not a film-forming composition, but is instead an oil absorber and a thickener for cosmetics. Thus Applicants' presently claimed composition has both a different structure and different physical and chemical properties from the compositions disclosed in the reference.

In addition the IPN film-former of HALLORAN et al is an alcohol-based or water-based polymer solution that will dry out on hair to form a film. Because of the solute nature, the second polymer is a linear polymer (GANTREX™), which will not form a network either before or after being sprayed on hair. While HALLORAN et al claimed their IPN structure of silsesquioxane and vinyl polymer, there is no disclosure in any of the Examples I through XXIII, any preparation of a polymer of such a structure. Instead HALLORAN et al simply took two commercial polymer solutions and mixed them together as the IPN film-former as in Example XXII, where the first polymer is a silsesquioxane resin dissolved in

Atty's 22770

Pat. App. 10/791,326

ethanol from Example I and the second polymer is vinylpyrrolidone/vinyl acetate copolymer (PVP/VA) from GAF Corporation, New Jersey. PVP/VA is a water-soluble or alcohol-soluble polymer and will not form a network per se before or after application. In fact the HALLORAN et al should more correctly be termed a blend, rather than an IPN. Thus HALLORAN et al provides no basis to reject any claim now presented as obvious under 35 USC 103.

US Patent 6,706,405 to SANDERS et al discloses a coating composition that contains an interpenetrating polymer network comprising a strong, stiff, cross linked epoxy polymer penetrated by a siloxane polymer. See col. 3, lines 53 to the bottom. The siloxane polymer is formed by reaction of a PMSQ precursor with a linear siloxane having hydroxy terminals. Applicants carry out no such reaction. Applicants' IPN is not merely linear. In Applicants' process, a silsesquioxane precursor reacts only with itself to form the silsesquioxane network. Furthermore the fact that the reference interpenetrating polymer networks include a cross linked epoxy polymer results in a strong, stiff polymer network that has properties very different from those in Applicants' interpenetrating polymer network that make skin feel soft when applied to the skin. SANDERS et al discloses a reaction between linear siloxanes with PMSQ. See col. 3, near the bottom. In addition, the purpose of the SANDERS et al compositions is to

Atty's 22770

Pat. App. 10/791,326

protect metal mechanical parts from corrosion far removed from improving the feel of the skin. See col. 1 of the reference.

SANDERS et al teaches an IPN composition comprising an epoxy polymer and a silicone polymer for metal coating to improve erosion resistance. A small amount of silsesquioxane former is used as cross linking agent to react with a linear silicone having OH terminal groups. This composition produces a film, upon application, to a subject, and is subject to curing in the presence of a catalyst of dibutyltin dilaurate. After curing, the film becomes hard to the touch and stays on the surface. This composition is more like a paint that cures to a hard film after a number of hours.

Such a composition is not applicable for cosmetic skin care applications.

Furthermore SANDERS et al does not teach the art of preparing microfine spherical powders of an IPN structure comprising organosilicone and polymethylsilsesquioxane for cosmetic applications. Thus SANDERS et al provides no basis to reject any claim now presented as obvious under 35 USC 103.

US Patent 7,256,232 to LAMAZE et al is also directed to compositions to prevent metal (i.e. aluminum) parts from corrosion. See the background portion of the reference in col. 1. The Examiner notes at the bottom of col. 1, right under the heading:

Atty's 22770

Pat. App. 10/791,326

DETAILED DESCRIPTION OF THE INVENTION , there is mention that the compositions contain either PMS or PMSQ or a mixture of the two. There is no apparent mention of forming an interpenetrating polymer network. However, the Examiner argues on page 5, first paragraph, of the office action that the fact that it was known from LAMAZE et al to blend PMS and PMSQ, together with the fact that both PMS and PMSQ are individually known ingredients according to the three other prior art references in forming interpenetrating polymers creates a strong argument that it would be obvious from the combination of references to form the presently claimed interpenetrating polymer network of PMS and PMSQ.

LAMAZE et al relates to a three-step process for preparing a coating composition. In step (1) a composition is prepared which comprises (a) silicone with OH groups; (b) metal fillers, such as TiO_2 , Al_2O_3 , ZrO_2 , and (c) an organic solvent that solubilizes silicone. In step (2) the composition is coated on a metal substrate. In step (3) the coated metal substrate is calcined at 650 to 1300° C. All silicone and organic materials are decomposed, leaving a metal layer of Si-O-Al, Si-O-Ti, and Si-O-Zr.

LAMAZE et al indicates that the silicone resin can be PMS, PMDS, or PMSQ with hydroxy groups. Apparently Si-OH groups from any silicone resin are required to produce the metal layers of Si-O-Al, Si-O-Ti, and Si-O-Zr, during calcination with metal oxides, and the silicone resins offer a viscous vehicle for coating metal substrates.

Atty's 22770

Pat. App. 10/791,326

There is no disclosure or suggestion of Applicants' particular compositions and no disclosure or suggestion that such compositions would be useful to apply to the skin to improve the feel of the skin. Thus LAMAZE et al provides no basis to reject any claim now presented as obvious under 35 USC 103.

Applicants find no reference that shows an art-recognized equivalence between either the organic polymer in the European Patent Application to FINBERG and PMSQ or an art recognized equivalence between the organic polymer in HALLORAN et al and PMS, and so it would not be obvious to combine these two references to arrive at the present invention. The fact that the European Patent Application discloses an elastomer and that HALLORAN et al discloses a film-forming composition for the hair indicate a widely divergent utility for each invention. The two secondary references: SANDERS et al and LAMAZE et al are directed to compositions that protect against corrosion, and LAMAZE et al does not even disclose an interpenetrating polymer network containing either PMS or PMSQ, but a mere mixture of the two. The combination of the four references does not render the invention obvious.

According to page 5, lines 6 to 15 of the present application, Applicants have data that indicate that a mere mixture of PMS and PMSQ will not provide the same superior properties of making the skin feel smooth as when an interpenetrating polymer

Atty's 22770

Pat. App. 10/791,326

network of PMS and PMSQ is prepared and applied to the skin. Applicants do have such directly comparative data. Applicants are now submitting these data in declaration form; Applicants enclose a Declaration Under 37 CFR 1.132 signed by Applicant Dr. James Wang. Such data refute the Examiner's combination of the LAMAZE et al reference with the other three references since the data show that a mere mixture of PMS and PMSQ as disclosed in LAMAZE et al has different viscosity properties from an interpenetrating polymer of PMS and PMSQ according to the present invention. Applicants' data in Table 3 show a direct comparison between the presently claimed interpenetrating polymer of PMS and PMSQ dissolved at a concentration of 13% in cyclopentasiloxane to form a silicone gel, a mere mixture of the PMS and PMSQ in cyclopentasiloxane also at 13% concentration to form a silicone gel and PMS per se in cyclopentasiloxane also at a 13% concentration to form a silicone gel. The results in Table 3 show a strikingly higher viscosity for the IPN according to the present invention.

Applicants have also conducted comparative skin tests on volunteers, and the results indicated that the silicone gel according to Example 3 of the present invention produced a very dry-smooth, non-oily, non-greasy feel, and provided a unique matter appearance, and that when the comparative silicone gels of Example 1 (PMS only) and Example 2 (PMS and PMSQ mixture), the same good results were not obtained. Thus Applicants have demonstrated surprising and unobvious results for the presently claimed

Atty's 22770

Pat. App. 10/791,326

invention that would not have been expected from reading the cited prior art references, taken individually or in combination.

Applicants believe that all claims now presented are allowable over the cited prior art and a response to that effect is earnestly solicited. Once the Examiner has had a chance to consider the Applicants' claims as now presented, the arguments for patentability in support of the claims now presented, and the Declaration Under 37 CFR 1.132 of Dr. James Wang in support of those arguments for patentability, Applicants would like to arrange a telephone interview between the Examiner and the

Atty's 22770

Pat. App. 10/791,326

Applicants' undersigned representative.

K.F. Ross P.C.

By: Jonathan Myers, 26,963
Attorney for Applicant

17 December 2008
5683 Riverdale Avenue Box 900
Bronx, NY 10471-0900
Cust. No.: 535
Tel: 718 884-6600
Fax: 718 601-1099
Email: email@kfrpc.com

Enclosure:
Declaration Under 37 CFR 1.132